Mr. Laun



**SUMMARY TRANSLATION RADIO #04/1993 (APRIL 1993)**

[ Rough, summary translations of selected articles, mostly about amateur radio, from the monthly magazine **RADIO**. ]

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[ Square brackets set off material added by the translator **and not appearing in the original** -- such as a comment, reference, or equivalent expression in another language. ]

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| 4 | Broadcast Receivers Advertised, Showing Band Coverage. |
| 4 - 6 | Radiodirectionfinding Contest in Hungary. |
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Outer front cover, pp 1, 2 - 3, 17:

"'MESSENGER' ['GONETS[1]'] IN SPACE AND ON THE AIRWAVES"
["'GONETS' V KOSMOSE I EFIRE"]

prepared by A[rnol'd Yakovlevich] Grif
[Scientific Editor (present or past) of RADIO]

The road from experimental model to putting into service can be time-consuming and difficult even under normal economic conditions. Just imagine how things are given the crisis in which the country now finds itself.

Just for such reasons we have focussed on the multi-function global communication system "Gonets" ["Messenger"], based on low-orbiting satellites. Despite everything, this system is making confident strides forward. Two space vehicles have been operating in orbit for several months already.

Back last year, "Gonets" demonstrated its broad capabilities. During an international conference[2] on reallocating frequencies for low-orbit communication systems at Melbourne (Australia), dependable E-mail communication was established with Moscow via "Gonets-1" satellites ("D" stands for demonstration). Suffice it to say that this system turned out to be the only operational one, though several designs were presented.

Tests between Moscow and Izhevsk and between Cheboksary and Moscow are proceeding in the regional communication mode. Six experimental "Gonets-D1" satellites will be launched in 1993 for communication between system users such as bankers, brokerages, ecological monitoring services, geologists, meteorologists, rescue-workers, medical organizations, farms, and many others in areas lacking a developed communication infrastructure.

A digression. Readers will probably recall articles about Soviet "Radio" satellites and about "Oscar"-type satellites built by radio amateurs in the USA, Germany, and England. They too were low-orbiting satellites and communication via their repeaters was conducted by many ultrashortwavers of the world using low-power radio stations. By the way, the last launch of six "Radio" satellites was performed with a single "Tsiklon" ["Cyclone"] rocket at the Plesetsk cosmodrome. This same rocket will ensure the step-by-step deployment of the "Gonets" system, lifting successive groups of six "Gonets" satellites from the same cosmodrome.

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[1]Vernard "Rip" Riportella, WA2LQQ, of Amsat fame, is involved with the "Gonets" system and can supply details. (TEL +1 914 986 6904, FAX +1 914 986 3875.)

[2]The reference is to a two-day conference "WARC '92: Evaluating the Decisions" held at Melbourne 2 - 3 December 1992 and sponsored by CIRCIT (Centre for International Research on Communication and Information Technologies) (TEL +61 3 616 8888, FAX +61 3 616 8800).

Of course, we are not suggesting that the potential of low-orbiting satellites was "discovered" by radio amateurs alone. But the experience gained from using space repeaters again confirms the viability, accessibility, and economy of such communication systems and could not fail to attract the attention of the creators of modern, commercial satellite communication systems, of which the "Gonets" system is one.

On the eve of Cosmonautics Day[3], a "Radio" correspondent had a conversation with Vladimir Nikolayevich Vlasov, chief constructor [glavnyy konstruktor] of the "Gonets" system, and with Aleksandr Alekseyevich Kiselev, president of the Inter-Branch Economic Association "Smolsat" [Mezhotraslevaya khozyaystvennaya assotsiatsiya "Smolsat"], which has been issued a license by the Russian Space Agency [Rossiyskoye kosmicheskoye agentstvo] to build and operate the "Gonets" system and by the Ministry of Communication of the Russian Federation for the right to provide communication services to users of the system.

[Most of the article is devoted to interviews with Vlasov and Kiselev, selected details from which follow.]

[Vladimir Nikolayevich Vlasov]

"Gonets" satellites are launched in circular orbit 1300 to 1500 km high, 28 to 24 times lower than geostationary satellites, resulting in a 20 dB energy advantage. This permits substantial simplification of both satellite and earth equipment and even supports personal subscriber terminals.

The space segment will consist of 36 satellites launched in six planes in near-circular polar orbit with an inclination of 83°. Subscribers will come within view of a satellite in not more than 20 minutes and will have a communication channel available for about 10 minutes. Subscribers will have to transmit a code to the satellite since the "Gonets" system is of the "closed" type.

After storing digital information on board, the satellite repeaters retransmit it in the form of telex, text, images, or information between data bases, between computers, or from unserved sensors [? - datchiki]. Depending upon the type of earth station, messages are transmitted at 4.8, 9.6, or 64 kbit/s, in packet mode.

The earth segment includes three types of subscriber terminal.

The first and most common type is the AT-M portable terminal, which weighs 3 to 5 kg and is small enough to fit easily with its antenna in an ordinary [suit?] [brief?] case.

The second type, a standard AT-C terminal, has a somewhat larger antenna, includes a personal computer, and also transmits information in the packet mode, but at a speed of 9.6 kbit/s.

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[3]Cosmonautics Day [Den' kosmonavtiki] is celebrated annually on the anniversary of Yuriy Alekseyevich Gagarin's flight from Baykonur on 12 April 1961 as the world's first cosmonaut. The April issue (#04) of RADIO usually highlights space and satellite activities.

The third type is regional stations. Regional communication networks based on these stations concentrate masses of information and transmit it at a speed of 64 kbit/s.

...

The most convenient band allocated by WARC-92 for low-orbiting communication satellites was selected -- 312 - 315 MHz Earth-to-space and 387 - 390 MHz space-to-Earth.

[Aleksandr Alekseyevich Kiselev]

Based on experience with "Gonets-D" satellites launched 13 July 1992, the launching of three "Gonets-D1" satellites, to be followed by three more, is planned for 1993.

In 1994 - 1996, all 36 satellites are to be placed in orbit. The completed system will have a capacity of 1000000 subscribers.

The "Smolsat" association includes the Scientific-Production Association of Applied Mechanics, creator of all national communication satellites, headed by Academician M. Reshetnev.

Inner front cover, outer back cover [among illustrated advertisements for consumer radioelectronics products]:

"AL'FATON AVTO-2" automobile/portable receiver. Detachable from automobile; operates on automobile power or four "A316" cells. Bands: Short wave (9.5 - 9.8 MHz) and ultrashortwave (65.8 - 74.0 MHz).

"VEGA RM-252S" stereophonic dual-cassette recorder. Bands: Long wave (148.5 - 283.5 kHz), medium wave (526.5 - 1606.5 kHz), short wave (9.35 - 12.1 MHz), and ultrashortwave (65.8 - 74 MHz).

"AMFITON RP-210" receiver. Bands: Long wave (148 - 285 kHz), medium wave (525 - 1607 kHz), short wave 1 (5.95 - 6.2 MHz), short wave 2 (11.7 - 12.1 MHz), and ultrashortwave (65.8 - 74 MHz).

pp 4 - 5: "VICTORY WASN'T EASY," by A. Malkin[4], Senior Radiosport Trainer.

The VI World Championship in Sport Radiodirectionfinding took place for six days last Autumn, near Lake Balaton in Hungary. Teams from Austria, England, Bulgaria, Germany, Poland, Romania, Czechoslovakia, Norway, Sweden, Switzerland, France, Mongolia, China, South Korea, Japan, Russia, Ukraine, Moldova, Latvia, Macedonia, Croatia, and Bosnia and Herzegovina took part; for the first time in the history of these competitions, the traditionally strong sportsmen from North Korea were absent.

Until the last moment, it wasn't certain that the team from Russia would be able to go to Hungary. The chief of the Central Radio Club, V[asiliy] M[ikhaylovich] Bondarenko, [UV3BW,] really had to beat the bushes to raise the necessary funds. The Russian OSTO [oboronnaya sportivno-tekhnicheskaya organizatsiya - Defense

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[4]A. Malkin was formerly Chief of the Radiosport Section of the DOSAAF Central Committee.

Sport-Technical Organization] [successor to DOSAAF] was able to allot R.650,000 from its reserves. And we have to thank our sponsor from Samara, Igor' Berezin, founder of the small business "Akvamarin," who not only paid the round trip air fare from Moscow to Budapest but helped obtain sports uniforms for the whole team, spending a total of about R250,000. Even so, the money collected wasn't sufficient to send a complete team, to cover all four categories -- men; women, men/veterans over 40; youth 16 - 18. Our team did not include juniors [youth] [young people].

The delegation included nine sportsmen:

| | |
|---|---|
| Men: | Anatoliy Burdeynyy from Odintsovo, near Moscow; |
| | Sergey Gureyev from Stavropol'; |
| | Aleksandr Kulikov from St. Petersburg. |
| Women: | Nadezhda Mayeva, née Chernysheva, from Moscow[5]; |
| | Oksana Shutkovskaya from St. Petersburg; |
| | Tat'yana Gureyeva from Stavropol'. |
| Men over 40: | Vladimir Chistyakov from Odintsovo, near Moscow; |
| | Lev Korolev from Vladimir; |
| | Viktor Kirpichenko from Stavropol'. |

Each "foxhunter" has his favorite distance (band) on which he wins as a rule. Thus, among the men Anatoliy Burdeynyy is most confident on 3.5 MHz, Aleksandr Kulikov on 144, and Sergey Gureyev on both bands; among the women Nadezhda Mayeva is most confident on 3.5 MHz, Oksana Shutkovskaya on 144 MHz, and Tat'yana Gureyeva on both bands. Our veterans are able to win on either band.

The seven top places were taken by Russia, Hungary, Czechoslovakia, Ukraine, Germany, China, and Moldova.

Lyubov' Provatorova and Oleg Fursa of Ukraine became world and European champions on 144 MHz and 3.5 MHz respectively.

It must be said that the level skill is steadily rising from one championship to the next and it is becoming more and more difficult to win prizes. Thus, the time differences between first and tenth places for both bands and for both men and women at the just-completed championship amounted to less than 10 minutes, whereas at the 1984 world championship in Norway this difference in the men's category amounted to over 20 minutes on 3.5 MHz and to over 35 minutes on 144 MHz.

Our sportsmen are holding on to their position basically through our "veterans"; our team went to this championship without youth. In all of Russia, two or three young people could not found capable of achieving high results.

Only the championship and the Cup of Russia event remain for selecting sportsmen for the team. We are living on old reserves. Many children-youth sport-technical schools for radiosport, created with such difficulty, are being closed down and those that remain lead a pitiful existence. In radiotechnical schools, in which in years past radiosport was cultivated and in some case prospered, instructors and even collective-station chiefs are being dismissed.

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[5]See lead article about Nadezhda Mayeva in RADIO #03/1993.

Another problem. Over the last 10 or 12 years, the Central Radio Club has made great efforts to organize the design and production of sport equipment. By 1990 there was no longer a problem over [obtaining] sport radiodirectionfinding receivers, "Lavina" radio stations for mixed events, "Efir" transceivers, etc. Today, unfortunately, the production of this equipment has been wholly or practically curtailed. That which does continue to be manufactured sells for fabulous prices, and sponsors prepared to finance sport radiodirectionfinding haven't yet been found.

Let's hope they are. Support by local authorities is needed. If youth is given the chance to engage in this interesting and useful form of sport, new radiodirectionfinding stars will appear to defend the sport honor of the homeland in the highest-ranking competitions.

[The next article appears in the "We Watch and Listen" SWL section.]

## "NONTRADITIONAL DX-ING"

by M[ikhail] Paramonov, Moscow
[President of the Moscow DX Association according to RADIO #07/1992]

The secrecy surrounding official transmissions is fortunately a thing of the past and we can speak freely of this form of DXing.

Official transmissions may be divided into several categories.

The first category is stations operating on distress frequencies, including 500 (c.w., international), 2182 kHz (A3E/H3E, international), 3023 kHz (aeronautical), 4125 kHz (supplements 2182 kHz), 4182 kHz (aeronautical), 5680 kHz (aeronautical), 6215.5 kHz (supplements 2182 kHz), 6273 kHz (aeronautical), 8364 kHz (rescue services), 12546 kHz (aeronautical), 16728 kHz (aeronautical), and 22245 kHz (aeronautical).

The second category is transmissions from stationary transmitters, including meteorological stations, ground aeronautical services, telephone channels, and many others. The author, for example, has been able to monitor radiotelephone communication with the "Molodezhnaya" Antarctic station. The following frequencies are allocated for these uses: 1606.5 - 1800, 1850 - 2160, 2194 - 2498, 2502 - 2625, 2650 - 2850, 3155 - 3400, 3800 - 3900, 3950 - 4063, 4438 - 4650, 4750 - 4995, 5005 - 5480, 5730 - 5950, 6765 - 7000, 7300 - 8195, 9040 - 9500, 9900 - 9995, 10100 - 11175, 11400 - 11650, 12050 - 12230, 13360 - 13600, 13800 - 14000, 14350 - 14990, 15600 - 16360, 17410 - 17550, 18030 - 18068, 18168 - 18780, 18900 - 19680, 19800 - 19990, 20010 - 21000, 21850 - 21870, 22855 - 23200, 23350 - 24850, 25010 - 25070, 25210 - 25550, 26175 - 28000, and 29700 - 30005 kHz.

Don't forget, though, that some services may operate on frequencies not specified in the Radio Regulations. Included are military radiostations, which use practically the entire spectrum and which can be identified by callsigns consisting of a word and numbers, for example "Fialka-45," "Center-104" ["Tsentr-104"], etc.

For those interested in telephone channels, the following frequencies should be checked: 7540, 7580, 9140, 10160, 10330, 10613, 10723, 11425, 13977.5, 14555, 14635, 14639.5, 14800, 16050, 16215, and 16280 kHz. Separate telephone conversations may take place simultaneously on upper and lower sideband. Railroads may be monitored on 2130 and 2150 kHz.

Meteorological stations may be found on 3001, 3360, 3408, 5150, 5280, 5355, 5420, 5660, 5690, 5890, 6705, 7495, 7640, 7750, 7762, 8940, 8085 [sic; 8985?], 10230, 10520, 10980, 11299, 12230, 12828, and 14737 kHz, operating on either SSB or AM.

ITAR-TASS transmissions for town and rayon[6] newspapers can be heard mornings on AM in the European part of Russia.

The third category is the maritime-mobile service, to which the following bands are allocated: 2000 - 2107, 4063 - 4483, 6200 - 6252, 8195 - 8815, 12330 - 13200, 16480 - 17360, and 22000 - 22720 kHz. The following channels are provided for simplex operation (single-frequency channels) and inter-ship multi-band (two-frequency) SSB: 4145, 6220, 6223, 8292.6, 8295.6, 12430.6, 12433.7, 12436.8, 16588.5, 16591.6, 16594.7, 22125.4, 22128.5, 22131.6, 22134.7, and 22137.8 kHz. If you can locate a copy of the Radio Regulations, published by "Radio i svyaz'" ["Radio and Communication" Publishing House] in 1985, you will find much interesting information on maritime radio communication.

The fourth category is the aeronautical-mobile service, which uses mostly ultrashortwave but also the following shortwave bands: 2850 - 3155, 3400 - 3500, 4650 - 4750, 5450 - 5680, 6252 - 6685, 8815 - 8965, 9778 - 9995, 10005 - 10100, and 11175 - 11400 kHz.

The fifth category is mobile stations, again mostly operating on ultrashortwave but also on shortwave, used by the militia, fire department, first aid service, taxis, mountain rescue teams [? - "Altay"], and geological expeditions. The following HF bands are allocated to the mobile service: 1605 - 2000, 2107 - 2170, 2194 - 2495, 2505 - 2850, 3165 - 3400, 4438 - 4650, 25010 - 25600, 26480 - 26950, and 27540 - 28000 kHz.

A discussion of official transmissions wouldn't be complete without mention of standard-time-and-frequency stations, listed in the table [see just below]. They aren't bad at confirming listener reports. Detailed information may be found in "Admiral List of Radio Signals," Volume 5 (published in Great Britain) and in the "World Radio TV Handbook."

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[6]A rayon is roughly comparable to a county in Anglo-Saxon countries.

[Table of standard-time-and-frequency stations]

| Callsign | Frequency (kHz) | Location |
|---|---|---|
| BPV | 5000/10000/15000 | Shanghai, China |
| CHU | 3300/7335/14670 | Ottawa, Canada |
| SSY | 2500/5000/10000/15000 | Tokyo, Japan |
| HD21OA | 1510/3810/5000/7600 | Guayaquil, Ecuador |
| LOL | 5000/10000/15000 | Buenos Aires, Argentina |
| NPO | 4445/10440.5/12804 | Philippines |
| OBC3 | 8650/12307 | Peru |
| RAT, RWM | 5000/10000/15000 | Moscow, Russia |
| RCH, RIM | 2500/5000/10000 | Tashkent, Uzbekistan |
| RID, RKM | 5004/10004/15004 | Irkutsk, Russia |
| RTA | 4996/9996/14996 | Novosibirsk, Russia |
| VNG | 7500 | Lendkhorst [Landhorst?], Australia |
| WWV | 2500/5000/10000/15000/20000 | Fort Collins, USA |
| WWVH | 2500/500 [sic; 5000]/10000/15000 | Kekaha, Hawaii |
| ZSG | 4291/8461/12724/17018/22455 | Republic of South Africa |
| ZUO | 455 | Pretoria, RSA |
| 4PB | 2500/5000/8473 | Sri Lanka |

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pp 10 - 13: "TUNER FOR RECEIVING SATELLITE TELEVISION," by A. Gol'tsov, Moscow. To be continued.

p 42: "HE WAS A LEADER IN SCIENCE AND A CHARMING [OBAYATEL'NYY] PERSON." [Published on the occasion of the 100th anniversary of the birth of academician Boris Alekseyevich Vvedenskiy.]

Vvedenskiy was responsible for the first ultrashortwave broadcasting station in the country, built in 1929. During the Great Patriotic War he worked in the Physics Institute of the Academy of Sciences of the USSR on propagation prediction for the General Staff of the Red Army. From 1953 until his death [date not given] he headed the propagation department in the Institute of Radiotechnology and Electronics of the Academy of Sciences of the USSR [otdel rasprostraneniya radiovoln v Institute radiotekhniki i elektroniki AN SSSR]. A Moscow street, as well as a square in Fryazino (Moskovskaya Oblast') where a part of the Institute is located, are named after him. Every three years a scholarship named after him is awarded to a student at Moscow State University and another is awarded to a student at the Military Communication Academy [Voyennaya akademiya svyazi] at St. Petersburg. Once every three years the Russian Academy of Sciences will award the B. A. Vvedenskiy prize for the greatest scientific work in the area of propagation and microwave [SVCh] electronics.

[End]